

45. The multipurpose heterodimeric antibody derivative according to Claim 43 wherein the two or more other molecules are selected from the group consisting of: sFv molecules, toxins, enzymes, hormones, cytokines and signaling molecules.

46. The multipurpose heterodimeric antibody derivative according to Claim 43, wherein the coupling of two or more of said domains to the other molecules takes place via a linker.

47. The multipurpose heterodimeric antibody derivative according to Claim 46, wherein the linker is an amino acid chain of at least 1 amino acid.

ab
B F17
48. The multipurpose heterodimeric antibody derivative according to Claim 43 comprising two or more other molecules having at least one further purpose and wherein said other molecules are coupled to two or more regions selected from the group consisting of: the N-terminus of the VH domain, the C-terminus of the CH1 domain, the N-terminus of the VL domain, the C-terminus of the CL domain.

49. The multipurpose heterodimeric antibody derivative according to Claim 43 wherein a first other molecule is coupled to the C-terminal side of the CH1 domain and a second other molecule is coupled to the C-terminal side of the CL domain.

50. The multipurpose heterodimeric antibody derivative according to Claim 49 wherein an sFv molecule is coupled to each of said CH1 and CL domains.

51. A method for the treatment of cancer, infections, autoimmune diseases or thrombosis, comprising
administering the multipurpose antibody derivative of Claim 43 in an amount effective for reducing the number of cancer cells, infectious agents, and parasites and/or treating the autoimmune disease.

52. A method for the diagnosis of cancer, infections, autoimmune diseases or thrombosis, comprising
administering the multipurpose antibody derivative of Claim 43 in an amount effective for identifying the presence of cancer cells, infectious agents, autoimmune disease and parasites.

53. DNA constructs for producing multipurpose heterodimeric antibody derivatives according to Claim 43, comprising a set of constructs selected from the group consisting of a, b and c:

wherein a) comprises a first construct encoding the heavy domain containing chains of one antibody or the VH domain of one antibody and the CH1 domain of another antibody, said construct further comprising: suitable transcription and translation regulatory sequences operably linked to the sequences encoding the VH and CH1 domains, and a coding sequence for one or more other molecule(s) operably linked thereto, and

B1
a second construct encoding the light domain containing chains of one antibody, or the VL domain of one antibody and the CL domain of another antibody, said construct further comprising: suitable transcription and translation regulatory sequences operably linked to the sequences encoding the VL and CL domains, and a coding sequence for one or more other molecule(s) operably linked thereto;

wherein b) comprises a first construct encoding the heavy domain containing chains of one antibody, or the VH domain of one antibody and the CH1 domain of another antibody, said construct further comprising suitable transcription and translation regulatory sequences operably linked to the sequences encoding the VH and CH1 domains, and

a second construct encoding the light domain containing chains of one antibody, or the VL domain of one antibody and the CL domain of another antibody, said construct further comprising: suitable transcription and translation regulatory sequences operably linked to the sequences encoding the VL and CL domains, and a coding sequence for two or more other molecule(s) operably linked thereto; and

wherein c) comprises a first construct encoding the heavy domain containing chains of one antibody or the VH domain of one antibody and the CH1 domain of another antibody, said construct further comprising suitable transcription and translation regulatory sequences operably linked to the sequences encoding the VH and CH1 domains, and further comprising a coding sequence for two or more other molecules operably linked thereto, and

a second construct encoding the light domain containing chains of one antibody or the VL domain of one antibody and the CL domain of another antibody, said construct further comprising suitable transcription and translation regulatory sequences operably linked to the sequences encoding the VL and CL domains.

54. DNA constructs according to Claim 53 wherein the coding sequence for the one or more other molecule(s) In the first and/or the second construct consist(s) of DNA sequences encoding the VL and VH domains of a second antibody, wherein said DNA sequences are operably linked to each other in either one of the sequences 5'VL2-VH2-3' or 5'-VH2-VL2-3'.

55. DNA constructs according to Claim 53, wherein a linker sequence is incorporated between one or more of the VH, CH1, VL or VH coding sequences and the coding sequence for the other molecule.

56. DNA constructs according to Claim 53 wherein a first construct is designated as pCA2C11sFvE6Hf and obtainable from E-coli deposit no. LMBP3715 and a second construct is designated as pCAE6HHfGSC11sFv (also identified as pCAE6H2ac2C11H) and obtainable from E.coli deposit no. LMBP3716.

57. DNA constructs which express the multipurpose antibody derivative of Claim 43.

58. Heterologous host cells comprising the DNA constructs according to Claim 53.

59. A method for producing multipurpose antibody derivatives, comprising expressing the DNA constructs according to Claim 53 in host cells.

60. The method according to Claim 59 wherein the host cells are chosen from the group consisting of bacterial cells, actinomycetes, yeasts, filamentous fungi, insect cells, mammalian cells, transgenic animals and plants.

61. The multipurpose heterodimeric antibody derivative according to Claim 43 wherein said antibody is a multivalent antibody.

62. The multipurpose heterodimeric antibody derivative according to Claim 43 wherein said antibody is a bispecific antibody.

63. The multipurpose heterodimeric antibody derivative according to Claim 43 wherein said antibody is a trispecific antibody.

64. The multipurpose heterodimeric antibody derivative according to Claim 43 wherein said antibody is a multispecific antibody.

65. A pharmaceutical preparation comprising the multipurpose antibody derivative of Claim 43 and a pharmaceutically acceptable diluent.

66. A diagnostic preparation comprising multipurpose heterodimeric antibodies according to Claim 43.